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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/471,857	12/23/1999	QIZHENG GU	NC29176	8032

7590 08/29/2005
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EXAMINER

WILLIAMS, LAWRENCE B

ART UNIT	PAPER NUMBER
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2638

DATE MAILED: 08/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No.	Applicant(s)	
	09/471,857	GU, QIZHENG	
	Examiner	Art Unit	
	Lawrence B Williams	2634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 2 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 June 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,5-13,15,16 and 20-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,5-13,15,16 and 20-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

2. Claim 15 recites the limitation "the apparatus" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dajer et al. (US Patent 6,781,980) in view of Shi et al. (US Patent 6,332,083 B1).

(1) With regard to claim 1, Dajer et al. discloses transmitting a processed IS-95 signal comprising an RF signal (col. 1, line 63-64), said RF signal comprising a plurality of information channel signals each comprising different code division multiple access data spread using a different spreading codes (col. 2, lines 37-45) wherein each of said plurality of information channel signals are transmitted in one of a plurality of transmission bands, and each of said plurality of information channel signals is carried on one of a plurality of carrier frequencies (col. 2, lines 33-35).

Dajer et al. does not however disclose the receiving of the RF signal or down-converting said RF signal to form an intermediate signals wherein said intermediate signal comprises: down-converted versions of each of said plurality of information channel signals, and said down-converted versions of each of the plurality of information channel signals are generated form a plurality of frequencies and said down-converted versions of each of said plurality of information channel signals are within a common frequency spectrum; and decoding said intermediate signal to extract data from said down-converted versions of each of said plurality of information channel signals.

However, Shi et al. discloses an apparatus and associated method for operating on receive signals received at a receiver where he discloses receiving of an RF signal (col. 3, lines 1-9) and down-converting said RF signal to form an intermediate signals (col. 6, lines 44-49) wherein said intermediate signal comprises: down-converted versions of each of said plurality of information channel signals, and said down-converted versions of each of the plurality of information channel signals are generated form a plurality of frequencies (col. 9, lines 18-29) and said down-converted versions of each of said plurality of information channel signals are within a common frequency spectrum (col. 6, lines 50-59); and decoding said intermediate signal to extract data from said down-converted versions of each of said plurality of information channel signals. Though neither of the references make mention of decoding to extract information, it would be an inherent part of the receiver of Shi et al.

It would have been obvious to one skilled in the art at the time of invention to incorporate the teachings of Dajer et al. with the invention of Shi et al. as a method of permitting sharing of increased portions of the circuitry in a multi-mode receiver (col. 2, lines 38-51).

(2) With regard to claim 11, Shi et al. also discloses wherein the step of receiving an RF signal comprises receiving an RF signal from a radio base station (col. 5, lines 22-23). It would have been obvious to one skilled in the art at the time of invention to incorporate the teachings of Dajer et al. with the invention of Shi et al. as a method of permitting sharing of increased portions of the circuitry in a multi-mode receiver.

(3) With regard to claim 12, Shi et al. also discloses in Fig. 2, the step of filtering (element 58, BP ADC) said intermediate signal to attenuate at least one signal outside the common frequency spectrum before performing the step of down-converting (46).

5. Claims 5-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dajer et al. (US Patent 6,781,980) in view of Shi et al. (US Patent 6,332,083 B1) as applied to claim 1 and further in view of Yokev et al. (US Patent 5,499,266).

(1) With regard to claim 5, as noted above, Dajer et al. in combination with Shi et al. disclose all limitations of claim 1 above. They do not however disclose wherein said step of down-converting comprises down-converting each of said plurality of carrier frequencies by a plurality of oscillator frequencies.

However, Yokev et al. teaches setting a local oscillator signal to a frequency selected from a given plurality of local oscillator frequencies (col. 19, line 65-col. 20, line 7).

It would have been obvious to one skilled in the art at the time of invention to incorporate the teaching of Yokev et al. as a method of translating each of the carrier frequencies to a specific pass band dependent upon the oscillator frequency.

(2) With regard to claim 6, Yokev et al. also teaches wherein the frequency spacing between each adjacent pair of said plurality of carrier frequencies and between each adjacent pair of said oscillator frequencies is substantially the same (col. 19, lines 23-34). It would have been obvious to one skilled in the art at the time of invention to incorporate the teaching of Yokev et al. as a method of translating each of the carrier frequencies to a specific pass band dependent upon the oscillator frequency.

(3) With regard to claim 7, Shi et al. also discloses in Fig(s). 6, 7, wherein said common frequency spectrum comprises a first common frequency spectrum, and the step of decoding said intermediate signal comprises the step of forming a base band signal by down-converting said first common frequency spectrum to a second common frequency spectrum, said second common frequency spectrum lower in frequency than said first common frequency spectrum.

6. Claims 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dajer et al. (US Patent 6,781,980) in combination with Shi et al. (US Patent 6,332,083 B1) in view of Yokev et al. (US Patent 5,499,266) as applied to claim 7 above and further in view of Applicant's Admitted Prior Art.

(1) With regard to claim 8, as noted above, the combination of Dajer et al., Shi et al. and Yokev et al. disclose all limitations of claim 7 above. They do not however disclose wherein the step of forming said base band signal further comprises down-converting the intermediate signal using a first oscillator signal to form a first base band component signal and a second oscillator signal to form a second base band component signal, the first and second oscillator signals each at a same frequency and a different phase.

However, Applicant's Admitted Prior Art teaches in Fig. 3, wherein the step of forming said base band signal further comprises down-converting the intermediate signal using a first oscillator signal (305) to form a first base band component signal and a second oscillator (320) signal to form a second base band component signal, the first and second oscillator signals each at a same frequency and a different phase (pg. 4, lines 6-16).

It would have been obvious to incorporate the teaching of the prior art with the invention of the combination of Dajer et al., Shi et al. and Yokev et al. as a known method of implementing a multimode receiver.

(2) With regard to claim 9, Applicant's Admitted Prior art also teaches wherein said first base band component comprises a first folded signal and said second base band component comprises a second folded signal, each folded signal having a frequency spectrum narrower than said first common frequency spectrum (pg. 4, lines 17-25).

It would have been obvious to incorporate the teaching of the prior art with the invention of the combination of Dajer et al., Shi et al. and Yokev et al. as a known method of implementing a multimode receiver.

(3) With regard to claim 10, Applicant's Admitted Prior art also teaches in Fig. 3, the steps of: sampling (311) said first base band component to form a first digital representation; sampling (315) said second base band component to form a second digital representation; and combining said first and said second digital representations to form an unfolded signal, said unfolded signal having a frequency spectrum greater than the spectrum of the first folded signal.

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7. Claim 13 is rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Shi et al. (US Patent 6,332,083 B1).

Shi et al. discloses in Fig. 2, a mobile radio telephone unit (12) comprising: an antenna (36, 38) configured to receive an RF signal, said RF signal comprising a plurality of information channel signals (col. 5, lines 46-52) each comprising different code division multiple access data spread using a different spreading codes; wherein each of said plurality of information channel signals are transmitted in one of a plurality of transmission bands (Shi et al. discloses his apparatus for IS-95, it is well known in the art that multiple IS-95 may be transmitted in different frequency bands), and each of said plurality of information channel signals is carried on one of a plurality of carrier frequencies (It is also well known in the art that multiple carrier frequencies are used in IS-95), a down-converter (46) operatively coupled to the antenna and configured to down-convert said RF signal to form an intermediate signals (col. 6, lines 43-49) wherein said intermediate signal comprises (col. 5, lines 35-42): down-converted versions of each of said plurality of information channel signals, and said down-converted versions of each of said plurality of information channel signals are generated from a plurality of frequencies (col. 9, lines 18-29), said down-converted versions of said plurality of information channels are within a common frequency spectrum (col. 6, lines 50-59). Though Shi et al. makes no reference a decoder to decode the intermediate signal to extract information, the decoder would be an inherent part of the receiver of Shi et al.

8. Claims 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shi et al. (US Patent 6,332,083 B1) as applied to claim 13 view of Yokev et al. (US Patent 5,499,266).

(1) With regard to claim 15, as noted above, Shi et al. discloses all limitations of claim 1 above. Shi et al. does disclose wherein said down-converter is configured to down-convert each of said plurality of carrier frequencies by a plurality of oscillator frequencies having a lower frequency.

However, Yokev et al. teaches wherein said down-converter is configured to down-convert each of said plurality of carrier frequencies by a plurality of oscillator frequencies having a lower frequency (col. 19, line 65-col. 20, line 7).

It would have been obvious to one skilled in the art at the time of invention to incorporate the teaching of Yokev et al. as a method of translating each of the carrier frequencies to a specific pass band dependent upon the oscillator frequency.

(2) With regard to claim 16, Yokev et al. also teaches wherein said down-converter comprises an oscillator for generating an oscillator signal comprising a plurality of oscillator frequencies (col. 19, line 65-col. 20, line 7), the frequency spacing between each adjacent pair of said plurality of carrier frequencies and between each adjacent pair of said oscillator frequencies is substantially the same (col. 19, lines 23-34). It would have been obvious to one skilled in the art at the time of invention to incorporate the teaching of Yokev et al. as a method of translating each of the carrier frequencies to a specific pass band dependent upon the oscillator frequency.

9. Claims 20, 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shi et al. (US Patent 6,332,083 B1) in view of Smith et al. (US Patent 6,009,124).

Shi et al. discloses in Fig. 2, a CDMA receiver (12) for operating in at least a first mode and a second mode (col. 2, line 67- col. 3, line 1), said CDMA receiver comprising: an initial RF

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stage (38, 42), said initial RF staged for outputting a received RF signal; an oscillator (LO), and generating a single oscillator signal when the receiver operates in the second mode; a down-converter (46) coupled to said initial RF stage and said oscillator, said down-converter for receiving said received RF signal and multiplying said RF signal by said single oscillator signal when the receiver operates in the second mode, to generate an intermediate signal (col. 6, line 43-49); and a base band stage, coupled to said down-converter, said base band stage (element 46 from input 66) for processing said intermediate signal. Shi et al. does not disclose the oscillator for generating a plurality of oscillator signals, each at a different frequency, when the receiver operates in the first mode or a down converter for multiplying said RF signal by said plurality of oscillator signals when the receiver operates in a first mode.

However, Smith et al. discloses in Fig. 4, an oscillator (xN) for generating a plurality of oscillator signals, each at a different frequency, when a receiver operates in the first mode and a down converter (488) for multiplying said RF signal by said plurality of oscillator signals a the receiver operates in a first mode (col. 6, lines 17-22).

It would have been obvious to one skilled in the art at the time of invention to incorporate the teachings of Smith et al with the invention of Shi et al. as a known method of down-converting CDMA signals.

(2) With regard to claim 25, claim 25 discloses limitations similar to those disclosed in claim 20, therefore a similar rejection applies.

10. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shi et al. (US Patent 6,332,083 B1) in view of Lockhart (US Patent 6,173,189 B1).

Shi et al. discloses in Fig. 2, a receiver (12) to receive an RF signal, said RF signal comprising a plurality of information channel signals (col. 5, lines 46-52) each comprising different code division multiple access data spread using a different spreading codes; wherein each of said plurality of information channel signals are transmitted in one of a plurality of transmission bands (Shi et al. discloses his apparatus for IS-95, it is well known in the art that multiple IS-95 may be transmitted in different frequency bands), and each of said plurality of information channel signals is carried on one of a plurality of carrier frequencies (It is also well known in the art that multiple carrier frequencies are used in IS-95), a down-converter (46) operatively coupled to the antenna and configured to down-convert said RF signal to form an intermediate signals (col. 6, lines 43-49) wherein said intermediate signal comprises (col. 5, lines 35-42): down-converted versions of each of said plurality of information channel signals, and said down-converted versions of each of said plurality of information channel signals are generated from a plurality of frequencies (col. 9, lines 18-29), said down-converted versions of said plurality of information channels are within a common frequency spectrum (col. 6, lines 50-59). Though Shi et al. makes no reference a decoder to decode the intermediate signal to extract information, the decoder would be an inherent part of the receiver of Shi et al.

Shi et al. does not however disclose the system as a base station. However, Lockhart discloses a dual mode base station (abstract).

It would have been obvious to one skilled in the art at the time of invention to combine the teachings of Shi et al. with the teaching of Lockhart to implement a wireless data network capable of operating two or more protocols (col. 1, lines 13-18).

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11. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shi et al. (US Patent 6,332,083 B1) in view of Lockhart (US Patent 6,173,189 B1) as applied to claim 21 above and further in view of Yokev et al. (US Patent 5,499,266).

As noted above, Shi et al. in combination with Lockhart discloses all limitations of claim 21 above. They do not however disclose wherein said down-converter comprises an oscillator for generating an oscillator signal comprising a plurality of oscillator frequencies, the frequency spacing between each adjacent pair of said plurality of carrier frequencies and between each adjacent pair of said oscillator frequencies is substantially the same.

However, Yokev et al. discloses wherein said down-converter comprises an oscillator for generating an oscillator signal comprising a plurality of oscillator frequencies (col. 19, line 65-col. 20, line 7), the frequency spacing between each adjacent pair of said plurality of carrier frequencies and between each adjacent pair of said oscillator frequencies is substantially the same (col. 19, lines 23-34). It would have been obvious to one skilled in the art at the time of invention to incorporate the teaching of Yokev et al. as a method of translating each of the carrier frequencies to a specific pass band dependent upon the oscillator frequency.

12. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shi et al. (US Patent 6,332,083 B1) in view of Shamlou et al. (US Patent 6,690,949 B1).

Shi et al. discloses in Fig. 2, a receiver (12) to receive an RF signal, said RF signal comprising a plurality of information channel signals (col. 5, lines 46-52) each comprising different code division multiple access data spread using a different spreading codes; wherein each of said plurality of information channel signals are transmitted in one of a plurality of

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transmission bands (Shi et al. discloses his apparatus for IS-95, it is well known in the art that multiple IS-95 may be transmitted in different frequency bands), and each of said plurality of information channel signals is carried on one of a plurality of carrier frequencies (It is also well known in the art that multiple carrier frequencies are used in IS-95), a down-converter (46) operatively coupled to the antenna and configured to down-convert said RF signal to form an intermediate signals (col. 6, lines 43-49) wherein said intermediate signal comprises (col. 5, lines 35-42): down-converted versions of each of said plurality of information channel signals, and said down-converted versions of each of said plurality of information channel signals are generated from a plurality of frequencies (col. 9, lines 18-29), said down-converted versions of said plurality of information channels are within a common frequency spectrum (col. 6, lines 50-59). Though Shi et al. makes no reference a decoder to decode the intermediate signal to extract information, the decoder would be an inherent part of the receiver of Shi et al.

Shi et al. does not however disclose the receiver and down-converter as a chip apparatus. However, Shamlou et al. discloses a system for supporting multiple wireless standards with a single circuit architecture (col. 2, lines 30-34). It would have been obvious to one skilled in the art at the time of invention to combine the teachings of Shamlou et al. with the teaching of Shi et al. to minimize size weight, complexity, power consumption and cost (col. 2, lines 30-34).

13. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shi et al. (US Patent 6,332,083 B1) in view of in view of Shamlou et al. (US Patent 6,690,949 B1) as applied to claim 23 above and further in view of Yokev et al. (US Patent 5,499,266).

As noted above, Shi et al. in combination with Shamlou et al. discloses all limitations of

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claim 23 above. They do not however disclose wherein said down-converter comprises an oscillator for generating an oscillator signal comprising a plurality of oscillator frequencies, the frequency spacing between each adjacent pair of said plurality of carrier frequencies and between each adjacent pair of said oscillator frequencies is substantially the same.

However, Yokev et al. discloses wherein said down-converter comprises an oscillator for generating an oscillator signal comprising a plurality of oscillator frequencies (col. 19, line 65-col. 20, line 7), the frequency spacing between each adjacent pair of said plurality of carrier frequencies and between each adjacent pair of said oscillator frequencies is substantially the same (col. 19, lines 23-34). It would have been obvious to one skilled in the art at the time of invention to incorporate the teaching of Yokev et al. as a method of translating each of the carrier frequencies to a specific pass band dependent upon the oscillator frequency.

14. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shi et al. (US Patent 6,332,083 B1) in view of Smith et al. (US Patent 6,009,124) as applied to claim 25 above and further in view of Yokev et al. (US Patent 5,499,266).

As noted above, Shi et al. in combination with Smith et al. discloses all limitations of claim 25 above. They do not however disclose wherein said down-converter comprises an oscillator for generating an oscillator signal comprising a plurality of oscillator frequencies, the frequency spacing between each adjacent pair of said plurality of carrier frequencies and between each adjacent pair of said oscillator frequencies is substantially the same.

However, Yokev et al. discloses wherein said down-converter comprises an oscillator for generating an oscillator signal comprising a plurality of oscillator frequencies (col. 19, line 65-

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col. 20, line 7), the frequency spacing between each adjacent pair of said plurality of carrier frequencies and between each adjacent pair of said oscillator frequencies is substantially the same (col. 19, lines 23-34). It would have been obvious to one skilled in the art at the time of invention to incorporate the teaching of Yokev et al. as a method of translating each of the carrier frequencies to a specific pass band dependent upon the oscillator frequency.

Conclusion

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a.) Souissi et al. discloses in US 2002/0110189 A1 Method and Apparatus for a Frequency Agile Variable Bandwidth Transceiver.

b.) Brueske et al. discloses in US 2003/0025623 A1 Dynamic Range on Demand Receiver and Method of Varying Same.

c.) Souissi discloses in US Patent 6,785,556 B2 Method and Apparatus for a Software Configurable Wireless Modem Adaptable for Multiple Modes of Operation.

d.) Ali et al. discloses in US Patent 6,292,474 B1 Multi-Frequency Band Nyktu-Mode Radio Receiver and Associated Method Having Shared Circuit Elements.

e.) Van Der Salm discloses in US Patent 6,343,220 B1 Multimode Telecommunication Terminal Device.

f.) Ault et al. discloses in US Patent 5,754,542 Method and Apparatus for System Determination in a Multi-Mode Subscriber Station.

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g.) Jou discloses in US Patent 6,925,067 B1 Configuration of Overhead Channels in a Mixed Bandwidth system.

h.) Flourey et al. discloses in US Patent 5,963,845 Satellite Payload with Integrated Transparent Channels.

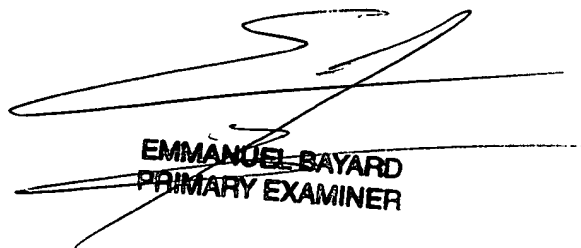
1. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lawrence B Williams whose telephone number is 571-272-3037. The examiner can normally be reached on Monday-Friday (8:00-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Vanderpuye can be reached on 571-272-3078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Lawrence B. Williams

lbw
August 23, 2005



EMMANUEL BAYARD
PRIMARY EXAMINER